CLAIMS

1. Implementation process of a conversational rational agent as a kernel of a dialogue system and/or as element (agent) of a multiagent system including the following stages:

- definition of a conceptual architecture of a conversational rational agent,
- formal specification of the different components of this architecture and their combination permitting a formal model to be obtained, characterized in that it also includes the stages:
- definition of a software architecture implementing the formal architecture,
- definition of implementation mechanisms of formal specification, the rational agent being suitable to converse with another agent or with a system user through whatever communications media.

2. Implementation process according to claim 1, characterized in that the different components of the formal model are specified in the same unified formal framework and with the same formalism.

3. Implementation process according to the claim 1 or 2, characterized in that the definition of implementation mechanisms of formal specifications is realized so as to obtain a direct correspondence between these mechanisms and aforesaid model.

4. Implementation process according to claim 1, characterized in that the formal specification of the different components of the formal architecture and their combination include a level of rationality axioms, a level of communication axioms, and a level of cooperation axioms.

5. Implementation process according to claims 1 and 4, characterized in that the definition of the software architecture implementing the formal architecture is realized by a rational unit containing an implementation layer of the rationality axioms level, an implementation layer of the communication axioms level, an implementation layer of the cooperation axioms level, corresponding respectively to axioms of the formal model.

6. Implementation process according to claims 1 and 4, characterized in that the definition of the software architecture implementing the formal architecture includes in addition:

- a generation module and a comprehension module implementing a communication level layer in natural language.

7. Implementation process according to claims 5 and 6, characterized in that the rational unit, the generation module and comprehension module implement mechanisms for implementation of the formal model.

8. Implementation process according to claims 5

and 7, characterized in that the generation module is capable of transcribing a logical statement, produced by the rational unit in natural language for the use of the system in dialogue context.

9. Implementation process according to claims 5 and 7, characterized in that the comprehension module is capable of interpreting the user's statement in a comprehensible logical statement of the rational unit.

10. Conversational rational agent placed as a kernel of a dialogue system and/or as element (agent) of a multiagent system, including:

- a definition of a conceptual architecture,
- a formal specification of the different components of this architecture and their combination permitting a formal model to be obtained,

characterized in that it includes:

- a definition of a software architecture implementing the formal architecture,
- a definition of the mechanisms for implementing the formal specifications realized by a rational unit that includes:
  - data comprising predefined axioms schemes and application dependent axioms schemes,
  - an application dependent knowledge base including a semantic network and inter-concept distances,
  - an inference engine to implement the formal mechanism specifications by means of data and the knowledge base in order to be able to receive a logical statement, understand it and be able to

provide a logical statement in response.

11. Conversational rational agent placed as a kernel of a dialogue system and/or as element (agent) of a multiagent system according to the claim 10, characterized in that, the data include the implementation data of a formal model, comprising:

- an implementation layer of rationality axioms, an implementation layer of communication axioms, an implementation layer of cooperation axioms, corresponding respectively to axioms of the formal model.

12. Conversational rational agent placed as a kernel of a dialogue system and/or as element (agent) of a multiagent system according to the claim 10 or 11, characterized in that it includes in addition:

- a natural language statement generation module starting from a logical statement coming from the rational unit and a comprehension module to provide a logical language statement to the rational unit from a natural language statement, these modules implement thus a natural language level communication layer.

13. Man/machine dialogue system, including a conversational agent according to any of the previous claims.

14. Information server characterized in that it includes a means to implement a man/machine dialogue system according to claim 13.

15. Multiagent system including some communicating agents, each agent comprising the means to implement an interaction, characterized in that it includes at least one agent where the kernel rests on the implementation of a conversational rational agent according to any of the previous claims.